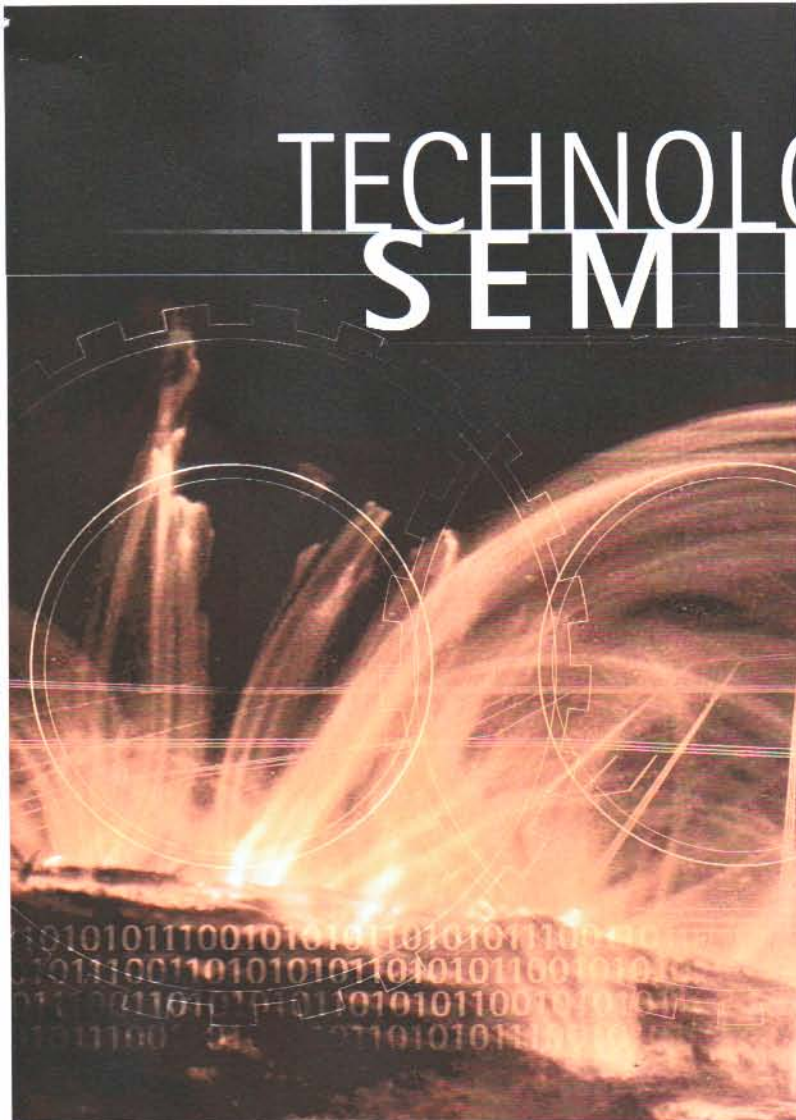


# TECHNOLOGY SEMINAR

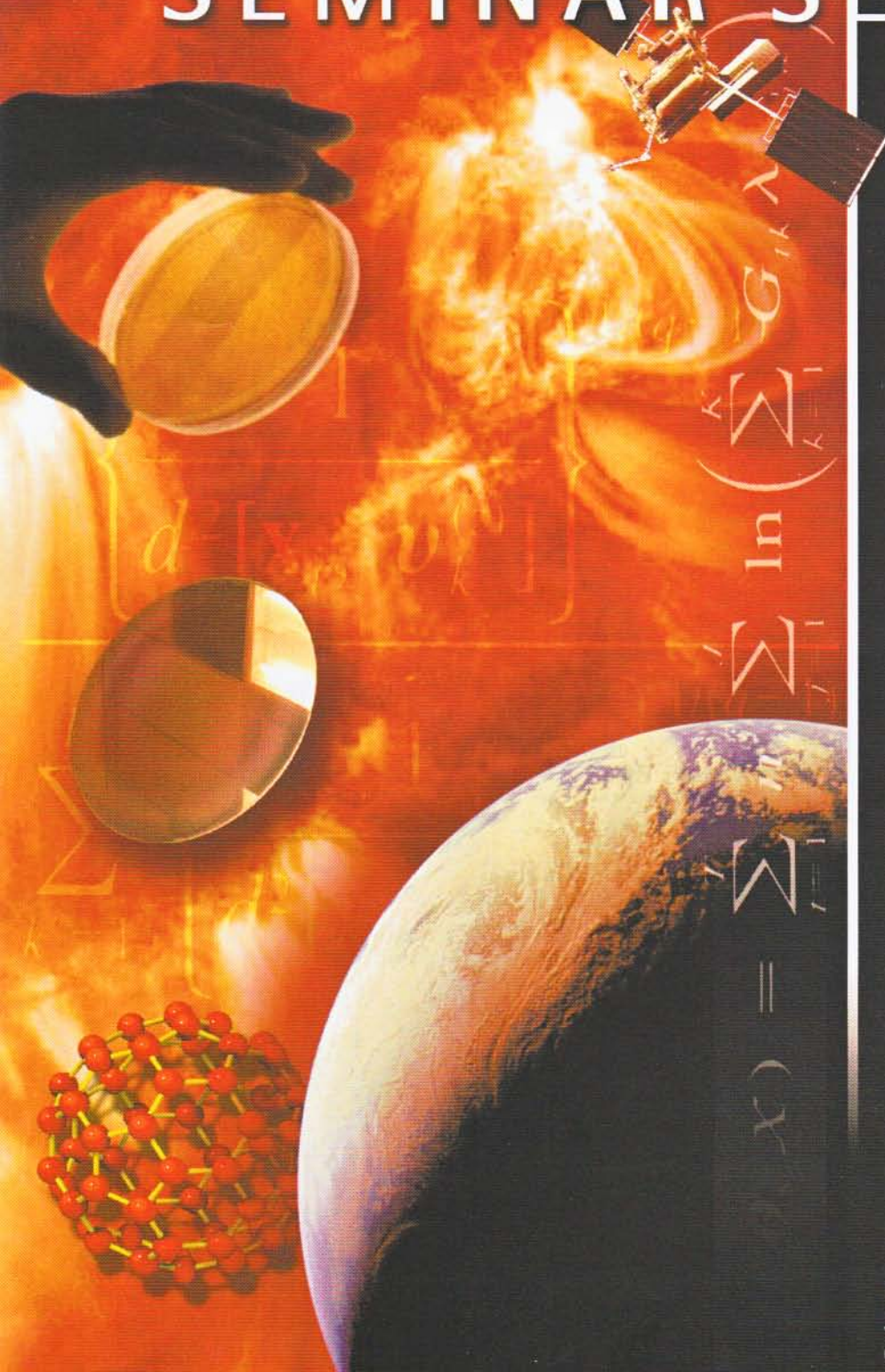


**Atomic Engineering of  
Quantum Systems in  
Group III-V  
Semiconductors for IR  
Detection and Imaging**

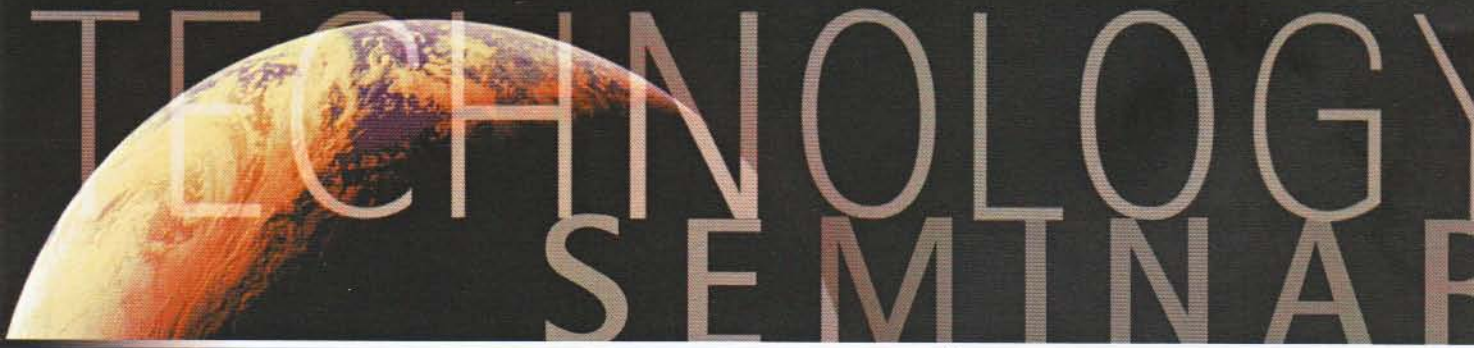
**Dr. Manijeh Razeghi  
Northwestern  
University /  
Center for Quantum  
Devices**

**1:30 - 3:00 PM  
Tuesday, 7 October 2008  
J.D. Hill Conference Center  
Auditorium**

# TECHNOLOGY SEMINAR SERIES



National Reconnaissance Office  
Jimmie D. Hill Conference Center  
Chantilly, Virginia



## Informing the NRO about Technology Research and Development

The Advanced Systems and Technology (AS&T) Directorate's Technology Seminar series features presentations on technology research investigations. The ongoing series is part of AS&T's Technology Outreach Program. Technologists visiting the NRO present their research before audiences in the Jimmie Hill Conference Center at NRO headquarters. The series offers an excellent opportunity for guest speakers to showcase technology research and development (R&D) that could have utility for the NRO, Intelligence Community (IC) members, and industrial partners. For attendees, the series promotes technology R&D awareness, provides educational opportunities, and offers a venue in which to engage technical experts.

The Technology Seminar series brings external research to the attention of the NRO and the IC to help guide NRO research initiatives. By bringing researchers to the NRO, seminar audiences hear first-hand accounts of R&D work of interest to them. Technology Seminars provide real-life windows-of-insight into the technology R&D world, presenting applied technology in a convenient venue for busy NRO engineers, scientists, and program managers, allowing them to visualize the potential in implementing such technology. In essence, the Technology Seminar series is a catalyst for the exchange of ideas between providers and users of technology.

## Seminar Format

Although topics vary considerably, a common thread woven through the series is research applicable to satellite systems design, engineering, and operations. Topics may, for example, describe sensor systems, communications and signals, data processing techniques, modeling and analytic processes, enabling technologies, or system components. Presentations focus on discussing phenomena, operations, equipment, procedures, experiments, evaluations, data, applications, lessons learned, and possible future research directions. Most importantly, the seminars are intended to convey results of the conducted research, even if on a laboratory scale.

The usual one-hour seminar format allows ample opportunity for audience questions and comments. Dialogue between speakers and the audience is valuable to both, enabling an exchange of ideas, technical insights, and possibly even discussions on solutions to technical challenges.

## Attendees and Clearances

The Seminar Series enables sharing technology research not only with the NRO but also with a diverse audience representing many government agencies, contractor organizations and academic institutions. These events are open to SCI-cleared individuals representing a broad cross-section of the 16-member IC agencies, military services elements, and government contractors. Clearances are required for seminar attendees due to security policy at the NRO. Typically one-third of the audience is from external agencies. Total attendance since series inception in 1996 has exceeded 28,000 with an average audience of 75 attendees per seminar (2007 statistics). An average of one seminar per week has occurred consistently over the course of the program—quite an impressive accomplishment. Clearances are not required for speakers from the presenting organizations for giving unclassified talks—escorts are provided.

*The Technology Seminar speaker series promotes the exchange of information about technology developments of interest to the NRO.*

*Speakers are typically principal investigators or researchers in industry, academia, government agencies, and laboratories.*

*Seminar presentations focus on advanced technology research activities and results.*

*While topics vary considerably, the common thread is technology relevant to satellite systems and reconnaissance.*

*Lessons learned from investigations, future activity projections are particularly valuable for seminar audiences.*

*Seminars are oriented to a technical audience not necessarily expert in the presenters' fields.*

*The Technology Seminar series affords an excellent opportunity to showcase technology research and development (R&D) that could have utility for the NRO, other Intelligence Community members, and industrial partners.*

$$L(\theta, X) = \sum_{i=1}^n n_i \sum_{k=1}^K \ln \left( \sum_{g=1}^G G_{ik} \right)$$



# SERIES

## Presenting Organizations

Many organizations throughout government, industry and academia have contributed numerous Seminar Series speakers. Representing over 170 different organizations, industry has given the most seminars, with government laboratories being a major contributor. University participation is highly valued and represents nearly ten percent of all seminars given to date.

New seminars are acquired from multiple sources by way of solicitations, inquiries, some regular-contributing organizations, and referrals made by attendees and recipients of seminar announcements. Referrals are a significant source of new seminars and are particularly valued because people familiar with the seminar series are able to assess outside expertise against their perception of interests within the NRO. While speakers receive no honoraria or compensation for their participation, they often benefit from the opportunity to expose their work to an invited audience.

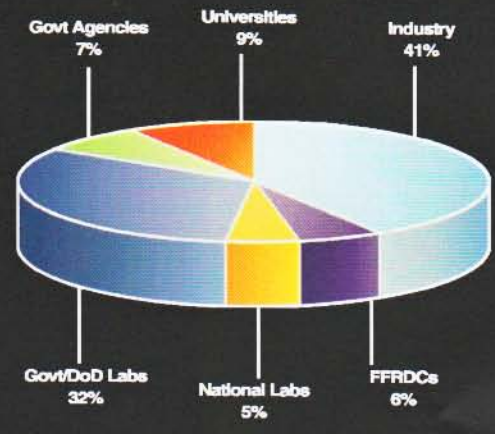
## Event Announcements

Seminars are widely advertised to SCI-cleared individuals throughout the Intelligence Community, industry, government laboratories, and academia. Extensive direct and secondary advertising reaches many thousands of subscribers. Most announcements are disseminated via subscription-based email using the NRO Management Information System (NMIS), the Contractor Wide Area Net (CWAN), Intelligence Community Email (ICE), and Internet Email. Announcements also appear in web postings on the NRO's intranet, Intelink-TS, Technology Seminars wiki page on Intellipedia (JWICS), CIA DS&T Conferences, DS&T Bulletin Board and the DNI Connection homepage and on other agency networks. The distribution of seminar announcements via Internet email subscription is a major advertising venue, exceeding 3,000 recipients.

## Seminar Archives

An extensive archive of seminar materials is available to users in a variety of formats and resources. Presentations in hardcopy, softcopy, DVD and VHS tape formats are available for most events. Slides, technical papers, and movie files are posted to the internal NRO AS&T website. Presentation files are also posted to the NRO CWAN AS&T website, The NRO On-demand video website, the CIA DS&T website at DS&T conferences, and the Intellipedia wiki page on JWICS through Inteldocs (via Intelink), as available. The Technology Seminars wiki page provides IC-wide availability to an extensive archive of seminar movie files. Hardcopy materials can be provided to requestors not having access to NRO networks. Online repositories of seminar materials on internal NRO networks assist researchers in retrieving information on past events. Seminar products are especially valuable for individuals not able to attend in person. Hundreds of requests for seminar information and products are received each year. Media products are provided to regular requestors who maintain libraries at their organizations.

## Contributing Speaker Organizations by Categories



*The Technology Seminar series is a catalyst for the exchange of ideas between providers and users of technology.*

*The Seminar Series enables sharing technology research with the NRO and a diverse audience representing many government and contractor offices and academic institutions.*

*Seminar advertising is comprehensive and far reaching to inform the Intelligence Community about technology research of interest to the NRO.*

*The online repositories of seminar materials on internal NRO networks assist researchers in retrieving information on technologies and past events.*



## High Interest Seminar Topics\*

<i>Service Oriented Architectures</i>	
<i>Security</i> .....	McDonald Bradley, Inc. (2008)
<i>Radar 2001</i> .....	Naval Research Laboratory (2002)
<i>SIGINT Emitter Trends</i> .....	TRW (1998)
<i>Countering Sophisticated Cyber Threats...</i>	MITRE Corporation (2007)
<i>WMD and Proliferation Intelligence</i> .....	CIA (1999)
<i>Advanced Space Systems</i>	
<i>Concepts 2010-2030</i> .....	Bekey Designs (1998)
<i>Carbon Nanotubes as</i>	
<i>Electric Conductors</i> .....	Rice University and CNI (2004)
<i>Iridium: Global Mobile</i>	
<i>Satellite Communications</i> .....	Iridium Satellite LLC (2005)
<i>Software Defined Radios</i> .....	ProObject, Inc. (2005)
<i>ELINT for the Working Manager</i> .....	TRW (2000)
<i>Air-Satellite Laser Communications</i> .....	Lockheed Martin IS&S (2006)
<i>Faster, Better, Cheaper:</i>	
<i>An Idea Without a Plan</i> .....	Aerospace Corporation (2000)
<i>Discoverer II: Military and</i>	
<i>Commercial Applications</i> .....	Air War College (1999)
<i>Potential Reconnaissance</i>	
<i>Applications for Small UAVs</i> .....	Naval Research Laboratory (2004)
<i>Forecast '98: Challenges</i>	
<i>for Advanced Research</i> .....	NSA (1998)
<i>Future Strategic Issues</i> .....	NASA Langley Research Center (2001)
<i>Delay Tolerant Networking:</i>	
<i>Enabling Network Centric Warfare</i> .....	WorldCom/MCI (2003)
<i>UAV GMTI Radar Upgrade</i> .....	General Atomics (2007)
<i>DOE/NRO Partnership Panel Topics</i> .....	Department of Energy Laboratories (2001)
<i>Multi-INT Sensor Fusion:</i>	
<i>Horizontal Fusion Demo</i> .....	Naval Research Laboratory (2004)
<i>Multi-Sensor Data Fusion</i> .....	Pennsylvania State University, Applied Research Lab (1999)

## Contact Information

Members of technical staffs or organizations who would like to participate either by giving a talk or by referring a topic for consideration, can contact the seminar staff. A submission for consideration includes a topic title, along with an abstract, brief speaker biography, and classification level for the talk (if any). Upon review, a listing of available reserved dates for scheduling a talk in the conference center at the speaker's convenience is provided. For further information or guidance on submitting topics, contact us.



**Doug Lewis**

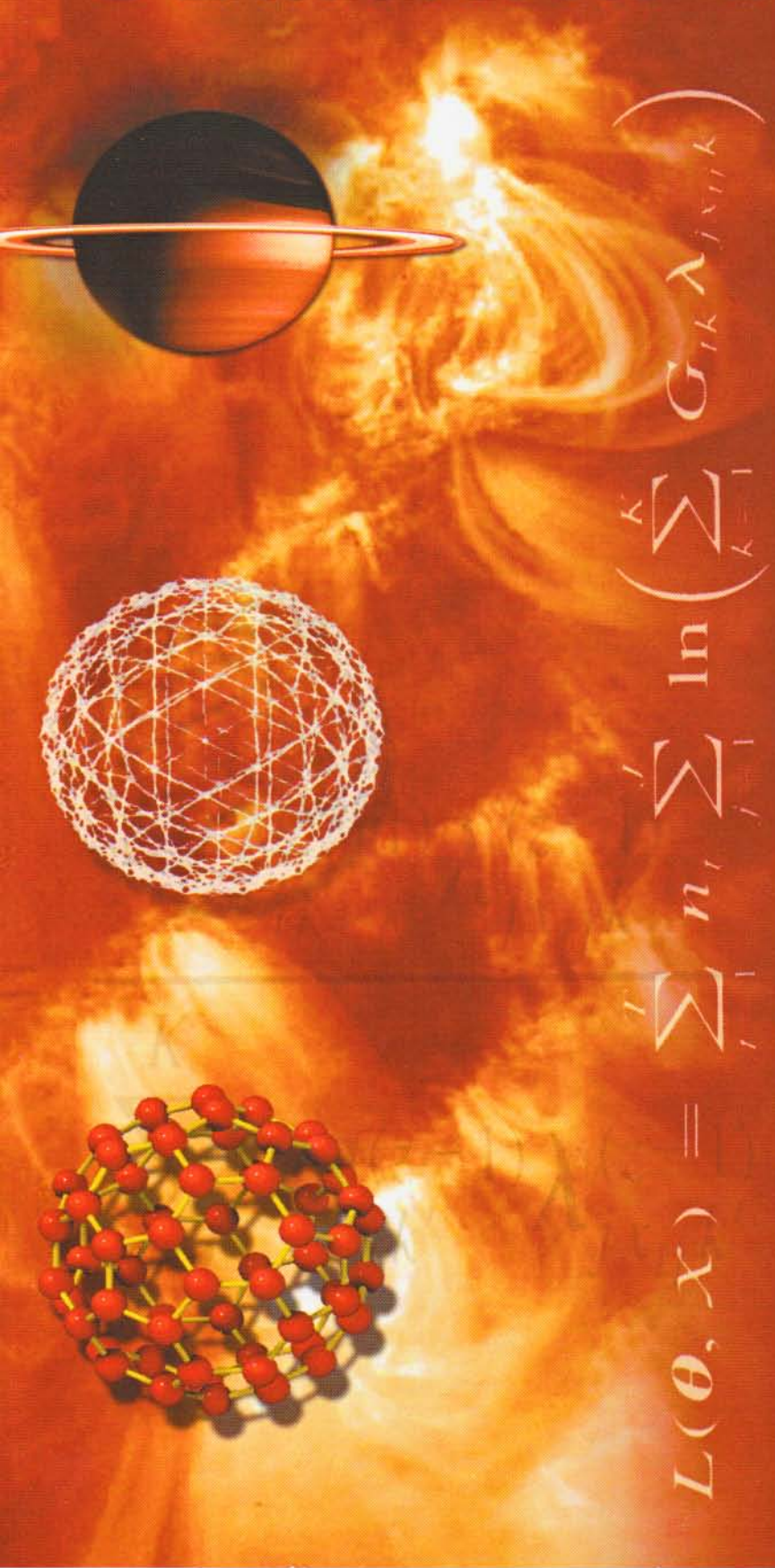
Open.....(703) 808-3990  
 Secure.....850-3990  
 Internet..... lewisdo@nro.mil  
 Intelligence Community E-mail  
 (ICE/JWICS).....lewisdo@nro.ic.gov  
 NMIS/GWAN..... lewisdo@gwan.npa.ic.gov  
 CWAN..... lewisdo@gwan.npa.ic.gov  
 Fax.....(703) 808-1497  
 Secure Fax.....(703) 808-1495



National Reconnaissance Office  
 14675 Lee Road  
 Chantilly, Virginia 20151-1715

www.nro.gov

# TECHNOLOGY SEMINAR SERIES



## ...Linking Providers with Users of Technology

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 Fax.....(703) 808-1497  
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 Chantilly, Virginia 20151-1715  
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